

## REMARKS

In the outstanding Office Action, the Examiner rejected claims 1-4, 6, 7, 9, and 12 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. US 2001/00311122 to Lackritz et al. ("Lackritz"); rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Lackritz in view of Beach, Raymond J., "Theory and optimization of lens ducts," Applied Optics, Vol. 35, No. 12, pp. 2005-2015 (April 20, 1999) ("Beach"); rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Lackritz in view of Hübner, Jörg et al., "Planar Er- and Yb-doped Amplifiers and Lasers," COM Technical University of Denmark, 10th European Conf. On Integrated Optics, Session WeB2, pp. 71-74 (2001) ("Hübner"); rejected claims 10 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Lackritz in view of U.S. Patent No. 6,760,520 to Medin et al., ("Medin"); and rejected claims 11 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Lackritz in view of U.S. patent Application Publication No. US 2003/0185266 to Heinrichs ("Heinrichs").

By this amendment, Applicant has amended claim 1. Claims 1-20 remain pending, with claims 1-14 currently presented for examination.

### **I. Product by Process Claims**

The Examiner states that "[c]laims 1-14 do not distinguish over the prior art of record regardless of the process used to create the slab waveguide, because only the final product is relevant, and not the process of making such as DC-biased plasma vapor deposition." Office Action, page 3. Although Applicant does not agree with the Examiner's characterization of claims 1-14, Applicant has amended claim 1 to further distinguish over the prior art of record, as further discussed below.

## II. Claim Rejections under 35 U.S.C. § 102

Regarding the Examiner's rejection of claims 1-4, 6, 7, 9, and 12 under 35 U.S.C. § 102(e) as being anticipated by Lackritz, Applicant disagrees with the Examiner's assertions and conclusions as set forth in the outstanding Office Action<sup>1</sup>. Accordingly, Applicant respectfully traverses this rejection.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference ... [t]he identical invention must be shown in as complete detail as is contained in the . . . claim." M.P.E.P. § 2131 8th Ed. (Rev. 2), May 2004 (internal citations omitted).

Lackritz cannot anticipate at least claim 1, because that reference does not teach a combination including "at least one highly amorphous film-based high refractive index contrast slab waveguide," as recited in claim 1 (emphasis added).

Lackritz teaches:

[t]he lower cladding 202 may be deposited on the substrate by one of the many available methods known in the art (dependent on the material used), such as for example spin, meniscus, extrusion, spray, dip, slot-die, or flash evaporation coating for polymer materials, vacuum deposition (e.g. evaporation, sputtering, chemical vapor deposition, CVD, or plasma enhanced CVD) for hard oxide or nitride materials such as SiO<sub>2</sub> or SiN<sub>x</sub>. The top surface of the resulting lower cladding layer (the surface furthest from the substrate) should be optically smooth and defect free so as to result in low scattering of the optical mode at the corecladding interface and subsequently lead to a low optical waveguide propagation loss in the integrated optical circuit. In addition, the cladding layer material itself should inherently exhibit low absorption and scattering at the wavelength(s) to be guided in the optical structure.

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<sup>1</sup> The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement of characterization in the Office Action.

Lackritz, par. [033]. Lackritz, however, further teaches a slab waveguide structure where “[t]he lower cladding 202 is preferably a crosslinked polymer . . .” Lackritz, par. [032] (emphasis added). Because Lackritz teaches a crosslinked polymer-based waveguide, the reference fails to teach “at least one highly amorphous film-based high refractive index contrast slab waveguide,” as recited in claim 1 (emphasis added).

Lackritz further fails to teach a combination including “wherein the slab waveguide is deposited by biased pulsed DC plasma vapor deposition,” as recited in claim 1. Lackritz teaches “[a]n optical core layer 204, preferably a polymer layer as described below, is next applied over the lower cladding layer 202 to ultimately provide an optical waveguide structure,” (Lackritz, par. [034]), and, “[t]he deposition process for the core layer is again dependent on the material choice . . . suitable choices for the core layer are polymer materials . . .” Lackritz, par. [035]. Lackritz is thus silent as to “wherein the slab waveguide is deposited by biased pulsed DC plasma vapor deposition,” as recited in claim 1.

For at least the foregoing reasons, Lackritz fails to teach each and every element of claim 1, and thus Lackritz cannot anticipate claim 1. Therefore, claim 1 is allowable over Lackritz. Claims 2-4, 6, 7, 9, and 12 depend from claim 1 and are allowable over Lackritz for at least the same reasons as is claim 1.

### **III. Claim Rejections under 35 U.S.C. § 103**

Regarding the Examiner’s rejections under 35 U.S.C. § 103(a), Applicant respectfully traverses these rejections on the ground that a *prima facie* case of obviousness has not been established. To establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. *See* MPEP §2143.03, 8th Ed. (Rev. 2), May, 2004. Second, there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must “be found in the prior art, and not be based on applicant’s disclosure.” See MPEP § 2143, 8th Ed. (Rev. 2), May, 2004. The Examiner has failed to establish a *prima facie* case of obviousness because, at a minimum, the references, whether taken alone or in combination, fail to teach or suggest each and every element of the claims.

A. Beach

The Examiner rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Lackritz in view of Beach. Claim 5 depends from claim 1, and thus requires all of the elements recited in claim 1. As discussed above, Lackritz fails to teach or suggest every element recited in claim 1, and thus fails to teach or suggest every element required by claim 5. Beach, cited by the Examiner at page 5 of the Office Action for allegedly teaching “a waveguide device with a lens duct to couple light from a diode into a waveguide,” fails to cure above-noted deficiencies of Lackritz. Because neither Lackritz nor Beach teach or suggest every element required by claim 5, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 5 under 35 U.S.C. § 103(a).

B. Hübner

The Examiner rejected claim 8 under 35 U.S.C. 103(a) as being unpatentable over Lackritz in view of Hübner. Claim 8 depends from claim 1, and thus requires all of the elements recited in claim 1. As discussed above, Lackritz fails to teach or suggest every element recited in claim 1, and thus fails to teach or suggest every element required by claim 8. Hübner, cited by

the Examiner at page 5 of the Office Action for allegedly teaching “an optical waveguide device ... with a slab wave waveguide folded in the plane of the slab,” fails to cure above-noted deficiencies of Lackritz. Because neither Lackritz nor Hübner teach or suggest every element required by claim 8, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 8 under 35 U.S.C. § 103(a).

C. Medin

The Examiner rejected claims 10 and 14 under 35 U.S.C. 103(a) as being unpatentable over Lackritz in view of Medin. Claims 10 and 14 depend from claim 1, and thus require all of the elements recited in claim 1. As discussed above, Lackritz fails to teach or suggest every element recited in claim 1, and thus fails to teach or suggest every element required by claims 10 and 14. Medin, cited by the Examiner at page 6 of the Office Action for allegedly teaching “a mode size converter,” and “a mode size converter with a reverse tapered region,” fails to cure above-noted deficiencies of Lackritz. Because neither Lackritz nor Medin teach or suggest every element required by claims 10 and 14, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 10 and 14 under 35 U.S.C. § 103(a).

D. Heinrichs

The Examiner rejected claims 11 and 13 under 35 U.S.C. 103(a) as being unpatentable over Lackritz in view of Heinrichs. Claims 11 and 13 depend from claim 1, and thus require all of the elements recited in claim 1. As discussed above, Lackritz fails to teach or suggest every element recited in claim 1, and thus fails to teach or suggest every element required by claims 11 and 13. Heinrichs, cited by the Examiner at page 7 of the Office Action for allegedly teaching “a

VCSEL and a diode are equivalent structures,” fails to cure above-noted deficiencies of Lackritz. Because neither Lackritz nor Heinrichs teach or suggest every element required by claims 11 and 13, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 11 and 13 under 35 U.S.C. § 103(a).

#### **IV. Conclusion**

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-14 in condition for allowance. Applicant submits that the proposed amendment of claim 1 does not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Finally, Applicant submits that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicant submits that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

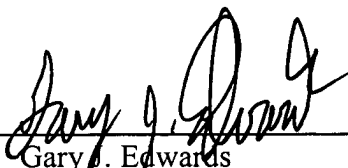
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: January 3, 2006

By: \_\_\_\_\_



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